

**Notice of Allowability**

Application No.

10/669,666

Examiner

Jennifer A. Leung

Applicant(s)

BEIERLE, FRED P.

Art Unit

1764

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed November 29, 2006.
2. ☒ The allowed claim(s) is/are 26,27 and 29-37.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application                     |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance             |
|  | 9. <input type="checkbox"/> Other _____   |

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Floyd Ivey on December 15, 2006. The application has been amended as follows:

#### **IN THE SPECIFICATION:**

On page 1: DELETE lines 7-16 and REPLACE with,

--This application is a continuation-in-part of U.S. application Serial No. 10/254,950, filed September 23, 2002, and now abandoned.--.

#### **IN THE CLAIMS:**

CANCEL claims 1-9.

AMEND claims 26 and 27 as follows:

Claim 26 (currently amended): An apparatus to produce fuel gas from biomass, comprising:

a single reaction chamber comprising a charcoal production bed, ~~and a delivery means wherein said delivery means is functionally connected to a source of raw, unprocessed biomass; and further wherein said charcoal~~ production bed comprises three vertically identifiable layers ~~[-]including~~ an uppermost layer of raw, unprocessed biomass; an intermediate layer ~~comprising~~

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a of biomass that has been reduced to char and fuel gas by pyrolysis zone; and a lowermost layer of biomass that has been further reduced to of charcoal; said charcoal comprising spent biomass;

a delivery means for supplying the raw, unprocessed biomass to the uppermost layer in the reaction chamber, said delivery means being connected to a source of raw unprocessed biomass;

a charcoal removal system for removing charcoal from the lowermost layer in the reaction chamber, wherein said charcoal removal system comprises a mechanical conveyance means, an independent motor and a temperature activated control means; comprising a mechanical conveyance means, comprising an independent motor and temperature activated control mean, functionally connected to said single reaction chamber;

said apparatus to produce fuel gas from biomass further comprising a filter wherein said filter is functionally and physically connected to said single reaction chamber by pipe gas exit means, and said filter further being functionally connected to a heat exchanger by pipes, said heat exchanger comprising a heat exchanger tank, a coolant fluid, coolant fluid inlet and a coolant fluid discharge, wherein, said heat exchanger discharge physically joins said heat exchanger tank to a demister element, said demister element comprising a demister tank and demister input, said demister input comprising at least one tube and a condensate drain, and further comprising a demister element output pipe, said demister element output pipe being functionally and physically connected to a fuel conditioner element;

an outlet means for removing fuel gas from the intermediate layer in the reaction chamber, said outlet means being located on the reaction chamber adjacent to the intermediate layer of the charcoal production bed;

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a filter connected to said outlet means for producing a filtered fuel gas;

a heat exchanger connected to said filter for cooling said filtered fuel gas, said heat exchanger comprising a tank containing a coolant fluid selected from the group consisting of water, a mixture of water and any antifreeze, and a mixture of water and alcohol, said heat exchanger further comprising a cooled fuel gas exhaust;

a demister comprising a tank having a demister input connected to the cooled fuel gas exhaust, a demister output for discharging demisted fuel gas and a condensate drain, said demister input comprising at least one tube;

a fuel conditioner connected to the demister output, said fuel conditioner element comprising a tank-element containing a fuel fluid, a bubble forming element near the bottom of said tank for supplying demisted fuel gas to the fuel fluid-element, a fuel fluid, and a fuel conditioning means a discharge pipe for discharging conditioned fuel gas;

~~and said apparatus to produce fuel gas from biomass further comprising a pump means positioned on said apparatus to produce fuel gas from biomass, such that the flow of air is vertically downward from the top of said reaction chamber with a controlled flow volume and such that said pump generates a pressure differential so that fuel gas flows from said intermediate layer through said filter, said heat exchanger means, said demister, and said fuel conditioner to said initial storage point;~~

~~the said coolant fluid from the group of water, a mixture of water, and any antifreeze fluid and a mixture of water and an alcohol.~~

storage means connected to the fuel conditioner discharge pipe for collecting the conditioned fuel gas; and

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pump means for generating a pressure differential within the apparatus, such that air is drawn vertically downward from the top of the reaction chamber, through the charcoal production bed, into the outlet means, through the filter, through the heat exchanger, through the demister, through the fuel conditioner and into the storage means.

Claim 27 (currently amended): The apparatus of claim 26, wherein further comprising: the fuel fluid is selected from the group consisting of diesel fuel, combustible vegetable oil and combustible liquid fossil fuel.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer A. Leung  
December 15, 2006 

